WHAT IS CLAIMED IS:

1. An apparatus for driving a light emitting element in response to input data, the light emitting element caused to emit light by flowing a direct current, the apparatus comprising:

a voltage source; and

a switching section disposed between the voltage source and the light emitting element and controlled on a basis of the input data,

wherein a resistance value from an output end of the voltage source to a drive end of the light emitting element is smaller than an internal resistance value of the light emitting element; and

wherein a current flowing into the voltage source is smaller than a current flowing into the light emitting element.

2. The apparatus according to claim 1, wherein the voltage source has a negative feedback loop that negatively feeds back an output and a buffer amplifier that amplifies an predetermined input voltage.

3. The apparatus for driving a light emitting element, according to claim 2,

wherein the voltage source has a capacitance section at an

output of the buffer amplifier;

wherein the capacitance section of the voltage source has greater capacitance than the capacitance value of parasitic capacitance of the light emitting element, when being observed from the switching section.

4. The apparatus according to claim 1, wherein the switching section changes an output voltage of the voltage source and a biasing voltage to bias the light emitting element on a basis of the input data.

5. The apparatus according to claim 2, further comprising an input side retaining section for retaining control voltage when controlling optical power at an input side of the buffer amplifier.

6. An apparatus for driving a laser element as a light emitting element in response to input data comprising:

a first voltage source for causing the laser element to be a forward biasing state and generating a first voltage that is lower than a threshold voltage of laser oscillation;

a second voltage source for causing the laser element to be a forward biasing state and generating a second voltage that is larger than the threshold voltage of laser oscillation; and

a switching section for changing the first voltage and the

second voltage on a basis of the input data and applying the changed voltage directly to a drive end of the laser element,

wherein a resistance value from an output end of the second voltage source and the drive end of the laser element is smaller than the internal resistance value of the laser element; and

wherein a current flowing into the second voltage source is smaller than that flowing into the laser element.

7. The apparatus according to claim 6, wherein the laser element is a surface emitting laser element.

8. The apparatus according to Claim 7,

wherein the surface emitting laser element includes a plurality of light emitting parts emitting a plurality of laser beams; and

wherein the first voltage is commonly applied to at least two of the light emitting parts of the plurality of light emitting parts.

9. The apparatus according to claim 6,

wherein at least latter of the first and second voltage sources has:

a negative feedback amplifying circuit having a buffer amplifier for amplifying an input voltage, the circuit for feeding back an output signal of the buffer amplifier to

lower impedance of output of the buffer amplifier; and

a capacitance section which has a larger capacitance value than the capacitance of parasitic capacitance of the laser element when being observed from the switching section and is connected to an output side of the buffer amplifier, and

wherein a resistance value from the output of the buffer amplifier to the laser element is smaller than a differential resistance value of the laser element when the laser emits light.

10. The apparatus according to claim 9, further comprising an input side retaining section for retaining control voltage when controlling optical power at an input side of the buffer amplifier.

11. The apparatus according to claim 10, further comprising a current supplying section for supplying a compensation current, which compensates a fluctuation of an output current of the negative feedback amplifying circuit due to changing of the switching section, to the drive end of the laser element.

12. The apparatus according to claim 11, wherein the current supplying section includes a current source and a second switching section for connecting the current source to the drive

end of the laser element when the switching section changes to the second voltage source and for separating the current source from the drive end of the laser element when the switching section changes to the first voltage source.

13. The apparatus according to claim 11,

wherein the current supplying section includes a current source having an MOS transistor and an MOS switch connected between the current source and the drive end of the laser element; and

wherein the MOS transistor of the current source and the MOS switch are formed of a dual gate MOS transistor.

14. An apparatus for driving a light emitting element in response to input data, the light emitting element emitting light by causing a direct current to flow thereto, the apparatus comprising:

a voltage driving section for driving the light emitting element with voltage;

a current driving section for driving the light emitting element with a current; and

a switching section for changing voltage drive by the voltage driving section and current drive by the current driving section based on the input data.

15. The apparatus according to claim 14,

wherein the input data are pulse data, and

wherein the switching section changes to the voltage drive by the voltage driving section in at least one of periods of rise and fall of the pulse data.

16. The apparatus according to claim15,

wherein the switching section is able to simultaneously select the voltage drive by the voltage driving section and the current drive by the current driving section; and

wherein the switching section simultaneously selects the current drive by the current driving section when being changed to the voltage drive by the voltage driving section to supply a current by the current drive to the light emitting element.

17. The apparatus according to claim 15,

wherein the voltage driving section includes a bias voltage applying section for applying bias voltage to the light emitting element; and

wherein the switching section changes to the voltage drive by the voltage driving section in the period of rise of the pulse data, subsequently changes to the current drive by the current driving section, and thereafter changes to voltage drive by the bias voltage applying section in the period of fall of the pulse data.

18. The apparatus according to claim 15,

wherein the voltage driving section includes a buffer section for amplifying an input voltage and an output side retaining section for retaining voltage corresponding to an output voltage of the buffer section at an output side of the buffer section; and

wherein the switching section supplies the voltage retained by the output side retaining section to the light emitting element.

19. The apparatus according to claim 18, wherein the voltage driving section includes an input side retaining section for retaining voltage corresponding to a control voltage when controlling optical power at the input side of the buffer section.

20. The apparatus according to claim 18,

wherein the current driving section includes a retaining section for retaining a voltage corresponding to the output voltage of the buffer section and a constant current source for outputting a current corresponding to the voltage retained by the retaining section; and

wherein the switching section supplies a current outputted from the constant current source to the light emitting element.

21. The apparatus according to claim 15, further comprising a compensating section for compensating a voltage of at least one of rise and fall of the pulse data, corresponding to a fluctuation in temperature of the light emitting element.

22. The apparatus according to claim 21, wherein the compensating section detects a terminal voltage of the light emitting element and compensates the voltage on a basis of the detection result.

23. The apparatus according to claim 21,

wherein the voltage driving section includes a bias voltage applying section for applying a bias voltage to the light emitting element;

wherein the current driving section includes a bias current supplying section for outputting a bias current corresponding to the bias voltage; and

wherein the switching section changes to the voltage drive by the voltage driving section in the period of rise of the pulse data, thereafter changes to the current drive by the current driving section, subsequently changes to the voltage drive by the bias voltage applying section in the period of fall of the pulse data, and changes to the current drive by the bias current supplying section in a period of OFF of the pulse data to supply

the bias current to the light emitting element.

24. The apparatus according to claim 21,

wherein the voltage driving section includes:

a buffer section for amplifying an input voltage;

an output side retaining section for retaining a voltage corresponding to the output voltage of the buffer section at the output side of the buffer section; and

an input side retaining section for retaining a voltage corresponding to the control voltage when controlling optical power at the input side of the buffer section;

wherein the switching section supplies the voltage retained by the output side retaining section to the light emitting element; and

wherein the compensating section detects a terminal voltage of the light emitting element and compensates the retaining voltage of the input side retaining section on a basis of the detection result.

25. The apparatus according to claim 24,

wherein the compensating section has a detecting section for detecting the terminal voltage of the light emitting element; and

wherein the compensating section compensates the retaining voltage of the input side retaining section on a basis of the

detection result of the detection section.

26 The apparatus according to claim 23, wherein the bias current supplying section detects the terminal voltage of the light emitting element and compensates the bias current so that the detected voltage coincides with the bias voltage.

27. The apparatus according to claim 15, wherein a period of the voltage drive by the voltage driving section is less than the minimum pulse width of the pulse data.

28. An apparatus for driving a light emitting element emitting light by causing a direct current to flow thereto, the apparatus comprising a compensating section for compensating fluctuation in temperature of the light emitting element on a basis of the terminal voltage of the light emitting element.

29. The apparatus according to claim 19, wherein the input side and output side retaining sections are capacitors.

30. A system for driving light emitting elements, the system comprising:

a plurality of apparatus for driving the light emitting elements in response to input data, the light emitting elements caused to emit light by flowing a direct current, the apparatus

comprising:

a voltage source; and

a switching section disposed between the voltage source and the light emitting element and controlled on a basis of the input data,

a detecting section for detecting optical power of the plurality of light emitting elements; and

a error amplifying section for comparing voltage corresponding to the detection result of the detecting section and a reference voltage to amplify the error therebetween;

wherein a resistance value from an output end of the voltage source to a drive end of the light emitting element is smaller than an internal resistance value of the light emitting element;

wherein a current flowing into the voltage source is smaller than a current flowing into the light emitting element; and

wherein each of the plurality of apparatus for driving light emitting elements drives the light emitting element on a basis of outputs of the error amplifying section.

31. The system according to claim 30,

wherein the error amplifying section includes:

an error amplifier inputted the detection result of the detecting section and the reference voltage; and

a plurality of negative feedback loops for negatively feeding back output of the error amplifier to inputs thereof,

the negative feedback loops provided to corresponding number of the apparatuses for driving light emitting elements;

wherein each of the plurality of negative feedback loops includes:

a retaining section for retaining a voltage corresponding to the output voltage of the error amplifier when controlling the optical power of the light emitting elements; and

a switching section connected to the retaining section in series;

wherein each of the plurality of apparatus for driving light emitting elements has an input side retaining section for retaining the retaining voltage of the corresponding retaining section in the plurality of negative feedback loops; and

wherein each of the plurality of apparatus for driving light emitting elements drives the light emitting element on a basis of the retaining voltage of the input side retaining section.

32. A system for driving light emitting elements, the system comprising:

an apparatus for driving a light emitting element in response to input data, the light emitting element emitting light by causing a direct current to flow thereto, the apparatus comprising:

a voltage driving section for driving the light

emitting element with voltage;

a current driving section for driving the light emitting element with a current; and

a switching section for changing voltage drive by the voltage driving section and current drive by the current driving section based on the input data,

a detecting section for detecting optical power of the plurality of light emitting elements; and

a error amplifying section for comparing voltage corresponding to the detection result of the detecting section and a reference voltage to amplify the error therebetween,

wherein a resistance value from an output end of the voltage source to a drive end of the light emitting element is smaller than an internal resistance value of the light emitting element;

wherein a current flowing into the voltage source is smaller than a current flowing into the light emitting element; and

wherein each of the plurality of apparatus for driving light emitting elements drives the light emitting element on a basis of outputs of the error amplifying section.

33. The system according to claim 32,

wherein the error amplifying section includes:

an error amplifier inputted the detection result of the detecting section and the reference voltage; and

a plurality of negative feedback loops for negatively

feeding back output of the error amplifier to inputs thereof, the negative feedback loops provided to corresponding number of the apparatuses for driving light emitting elements;

wherein each of the plurality of negative feedback loops includes:

a retaining section for retaining a voltage corresponding to the output voltage of the error amplifier when controlling the optical power of the light emitting elements; and

a switching section connected to the retaining section in series;

wherein each of the plurality of apparatus for driving light emitting elements has an input side retaining section for retaining the retaining voltage of the corresponding retaining section in the plurality of negative feedback loops; and

wherein each of the plurality of apparatus for driving light emitting elements drives the light emitting element on a basis of the retaining voltage of the input side retaining section.